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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,068	03/26/2004	Karson L. Knutson	110348-134668	8657

31817 7590 06/16/2005

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EXAMINER

FUQUA, SHAWNTINA T

ART UNIT	PAPER NUMBER
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3742

DATE MAILED: 06/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/815,068	KNUTSON ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Shawntina T. Fuqua	3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 5-7, 11-15, and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thakur (US6808758) in view of O'Carroll et al (US6559424) and Li et al (US6641302).

Thakur discloses an apparatus/method/system comprising a semiconductor wafer as a target area (22), lamps (27), a reflective device (column 5, lines 1-3), a backside hotplate as a heating device (34), and a system which includes multichambers (column 9, lines 6-14). Thakur does disclose flash lamps, a reflective device having a plurality of concentric zones wherein each is associated with a reflectivity, and a plate type reflector wherein the zones are symmetrical around a vertical axis. O'Carroll et al discloses flash lamps (column 3, lines 57-65) and Li et al discloses a reflective device (8) having a plurality of concentric zones wherein each is associated with a reflectivity (Figures 7A-B, column 5, lines 13-29), and a plate type reflector wherein the zones are symmetrical around a vertical axis (Figure 3). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have replaced the lamps and reflector of Thakur with the flash lamps of O'Carroll and the reflector of Li et al because, flash

lamps and a zonal reflector allow the temperature to be controlled more accurately and allow for a more uniform heating.

3. Claims 4, 16, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thakur in view of O'Carroll et al and Li et al as applied to claims 1, 13, and 20 above, and further in view of Lee et al (US6753272).

Thakur in view of O'Carroll et al and Li et al discloses all of the recited subject matter except a heating plate with independently controlled zones. Lee et al discloses a heating plate with independently controlled zones (40, abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included the heating plate with independently controlled zones of Lee et al in the apparatus of Thakur along with the flash lamps O'Carroll et al and reflector of Li et al because, independently controlled zones allows the wafer to be uniformly heated and prevents slip line formations.

4. Claim is rejected under 35 U.S.C. 103(a) as being unpatentable over Thakur in view of O'Carroll et al and Li et al as applied to claim 1 above, and further in view of Gat et al (US6771895).

Thakur in view of O'Carroll et al and Li et al discloses all of the recited subject matter except a gold reflector. Gat et al discloses using gold as a reflector (column 4, lines 38-40). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included gold as a reflector as taught by Gat et al in the apparatus of Thakur along with the flash lamps of O'Carroll et al and reflector of Li et al because, a gold reflector allows the wafer to be heated more uniformly.

5. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thakur in view of O'Carroll and Li et al as applied to claim 1 above, and further in view of Grant et al (US5228206).

Thakur in view of O'Carroll et al and Li et al discloses all of the recited subject matter except a xenon flash lamp. Grant et al discloses a xenon flash lamp (abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included a xenon flash lamp in the apparatus of Thakur along with the flash lamps of O'Carroll et al and reflector of Li et al because, a xenon flash lamp allows the substrate to be heated more efficiently.

6. Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thakur in view of O'Carroll et al and Li et al as applied to claims 13 and 15 above, and further in view of Noguchi (US5219786).

Thakur in view of O'Carroll et al and Li et al discloses all of the recited subject matter except activating implanted ions by heating the second surface to a pre-flash temperature below ion diffusion and heating a first surface to a temperature between ion diffusion and substrate melting by light rays from a flash lamp and the first surface is above the ion diffusion temperature for a time period of three milliseconds or less. Noguchi discloses activating implanted ions by heating the second surface to a pre-flash temperature below ion diffusion and heating a first surface to a temperature between ion diffusion and substrate melting by light rays from a flash lamp and the first surface is above the ion diffusion temperature for a time period of three milliseconds or less (column 2, line 31-column 3, line 60). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included the activating

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implanted ions heating method of Noguchi in the apparatus of Thakur along with the flash lamps of O'Carroll et al and reflector of Li et al because, activating implanted ions by heating the second surface to a pre-flash temperature below ion diffusion and heating a first surface to a temperature between ion diffusion and substrate melting by light rays from a flash lamp and the first surface is above the ion diffusion temperature for a time period of three milliseconds or less allows a semiconductor layer to be formed on the substrate at a relatively high temperature while the substrate carrying the layer is heated at a temperature that will not cause adverse effects on the substrate.

### *Response to Arguments*

7. Applicant's arguments with respect to claims 1-24 have been considered but are moot in view of the new ground(s) of rejection.

### *Conclusion*

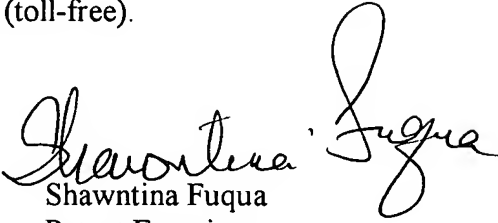
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shawntina T. Fuqua whose telephone number is (571) 272-4779. The examiner can normally be reached on Monday-Friday 8-4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on (571) 272-4777. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

stf  
June 13, 2005

  
Shawntina Fuqua  
Patent Examiner  
Art Unit 3742